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Appl. No. 10/822,511
Amdt. dated September 19, 2006
Reply to Office Action of June 21, 2006

Remarks

The present amendment responds to the final Official Action dated June 21, 2006. The Official Action rejected claims 1, 7, 8, and 11 under 35 U.S.C. 102(b) as anticipated by Leung U.S. Publication No. 2002/0167913 ("Leung"). Claims 2, 3, 9, 10, 12, and 13 were rejected under 35 U.S.C. 103(a) as unpatentable over Leung in view of Larsson U.S. Patent No. 5,241,690. Claims 4-6, 14, and 15 were rejected under 35 U.S.C. 103(a) as unpatentable over Leung in view of Larsson U.S. Patent No. 5,241,690 and further in view of Dent U.S. Patent No. 5,894,473 ("Dent"). These grounds of rejection are addressed below following a brief discussion of the present invention to provide context.

Claims 1, 7, 8, and 11 have been amended to be more clear and distinct. Claims 1-15 are presently pending.

The Present Invention

A wireless telephone network according to an aspect of the present invention includes at least one base station, each base station being capable of serving a plurality of mobile units. Each mobile unit periodically sends a feedback signal to the base station, with feedback signals including encoded information indicating the channel condition being experienced by the mobile unit, as sensed by the mobile unit. A feedback signal may suitably be sent to the base station once every timeslot, where a timeslot is a time interval during which transmission or reception occurs, with the duration of the timeslot being defined by the standard under which the network is operating. The base station collects and stores past channel condition information values for each mobile unit.

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In order to schedule transmission for efficient throughput and to manage operations necessary for transmission, such as encoding of data and setting of data units that can be transmitted during a timeslot, the base station makes predictions about the channel condition that will be experienced by each mobile unit when transmission is performed. Transmission by the base station to a mobile unit will be separated by some lag from the most recent channel condition information available for that mobile unit. For a slowly changing channel, the best prediction performance is provided by specific channel condition prediction based on recent channel condition values, while in a rapidly changing channel, better prediction performance is provided by taking the mean of the sequence of channel condition values that occurred over time. When making channel predictions, therefore, the base station computes the mean of the sequence of channel condition values and computes the channel condition prediction in such a way as to assign a greater weight to specific predictions when a channel is changing slowly and a greater weight to the mean value of the overall sequence when a channel is changing rapidly. The weight is computed based on the gradient of the prediction error with respect to the weight.

The Art Rejections

As addressed in greater detail below, Leung, Larsson, and Dent do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicants do not acquiesce in the analysis of Leung, Larsson, and Dent made by the Official Action and respectfully traverses the Official Action's analysis underlying its rejections.

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The Official Action rejected claims 1, 7, 8, and 11 under 35 U.S.C. 102(b) as anticipated by Leung. In light of the present amendments to claims 1, 7, 8, and 11, this ground of rejection is respectfully traversed.

Claim 1 recites that "each indicator signal" includes "a value relating to a signal to noise ratio being experienced by the mobile unit as sensed by the mobile unit". Similar limitations are found in claims 7, 8 and 11 as presently amended.

These limitations in the claimed combinations are not taught and are not made obvious by Leung. Leung teaches channel estimation in a wireless communication system. Leung employs a traffic channel signal and a reverse link pilot signal. The reverse link pilot channel includes a forward link power control signal comprising a single bit representing a signal from a mobile station to a base station to either increase or decrease its transmit power. Leung teaches the estimation of channel statistics in order to adaptively filter a pilot signal, and uses channel information such as information derived from received channel signals in order to make estimates. In other words, Leung evaluates signals received at the base station to determine channel conditions experienced by the mobile.

Leung does not teach that a signal transmitted by a mobile unit includes an indicator signal, including a value relating to a signal to noise ratio being experienced by the mobile unit as sensed by the mobile unit as presently claimed by claim 1. Instead, Leung uses various analytical techniques to derive information about a channel, based on information provided by the signals received, but this information does not include a value relating to the signal to noise ratio experienced and sensed by the mobile station. The transmission of values relating to the signal to

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noise ratio experienced by a mobile station, as sensed by the mobile station, reduces the workload of the base station and provides positive information about the signal to noise ratio being experienced by the mobile station, allowing for efficient use of such information in channel quality estimation and prediction. Claim 1, as amended, therefore defines over the relied upon art and should be allowed.

As noted above with respect to claim 1, Leung does not teach and does not make obvious the use of an encoded channel condition indicator including a value relating to a signal to noise ratio being experienced by a mobile unit as sensed by the mobile unit. Claim 7, as presently amended, similarly defines over the relied upon art and should be allowed.

With respect to claim 8, Leung does not teach and does not make obvious "a data interface module" for retrieving channel indicators including values indicative of actual channel conditions experienced by the mobile units as sensed by the mobile units. Claim 8, as presently amended, defines over the relied upon art and should be allowed.

Claim 11, as presently amended, similarly defines over the relied upon art and should be allowed.

The Official action rejected claims 2, 3, 9, 10, 12, and 13 under 35 U.S.C. 103(a) as unpatentable over Leung in view of Larsson. Claims 2 and 3 are dependent claims having claim 1 as a base claim, claims 9 and 10 are dependent claims having claim 8 as a base claim, and claims 12 and 13 are dependent claims having claim 11 as a base claim. Because claims 1, 8, and 11, as amended, have been shown to be allowable, claims 2, 3, 9, 10, 12, and 13 should also be allowed.

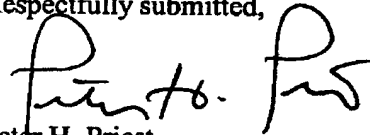
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The Official Action rejected claims 4-6, 14, and 15 under 35 U.S.C. 103(a) as unpatentable over Larsson in view of Leung and further in view of Dent. Claims 4-6 are dependent claims having claim 11 as a base claim. Because claims 1 and 11 have been shown to be allowable, claims 4-6, 14, and 15 should also be allowed.

Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,



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